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ABSTRACT

These three issues of "Research in Developmental Education," examine the demographic characteristics and academic achievement of developmental students. Included are the following: (1) "Demographics and Developmental Education," by Hunter R. Boylan, which examines trends in the developmental student population and their college enrollments; presents data on developmental students' age, race, gender, and high school graduation rates; projects trends after the year 2000; reviews support for developmental programs; and discusses the new opportunities for developmental educators in response to the changing demographics of the American population; (2) "Academic Achievement Trends among Disadvantaged Youth," by Boylan, which offers projections about the academic achievement of college students from disadvantaged backgrounds who will be enrolled during the latter half of the 1980's, reviewing trends in reading, writing, mathematics, and science, and discussing the implications of these trends for developmental education; and (3) "Performance and Retention of Developmental Students: A Five-Year Follow-up Study," by Dale Purvis and Pamela C. Watkins, which compares the academic performance and persistence of a group of 363 non-remediated students, who had low achievement test scores, to a similar group of 239 remediated students at Georgia Southern College between 1979 and 1984. Data tables and references are included. (PAA)

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Research in Developmental Education

Volume 2, Issue 1

IN THIS ISSUE:

Demographics and Developmental Education

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What changes are now occurring?

What do they mean to you?

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Demographics and Developmental Education

By: Hunter R. Boylan

Population demographics have had a significant impact on developmental education programs during the past two decades. In the early to mid-1960's, a substantial pool of potential college applicants was available as a result of the post-World War II "baby boom." Given this large pool, it was easy to screen out ill-prepared students and still maintain enrollment levels. During this period developmental and learning assistance programs were almost non-existent on college campuses.

By the early 1970's the pool of traditional college-age students had begun to decline. This, coupled with what was, at that time, a societal commitment to educational opportunity, caused colleges and universities to relax admissions standards and admit a larger percentage of students who were ill-prepared for academic work. In order to give such students at least some chance of success in college, many institutions of higher education established developmental and learning assistance programs. Roueche and Snow, report that the percentage of 2-year institutions offering some form of developmental education increased from 50% in 1970 to 93% in 1977. Similarly, 43% of 4-year campuses offered developmental education activities in 1970 while 78% offered such programs by 1978 (Roueche and Snow, 1979).

During the early 1980's the decline in number of traditional college-age students continued. This, coupled with a general decline in the skill level of high school graduates caused colleges and universities to continue admitting underprepared students even though the societal commitment to educational opportunity was declining.

Even now, during a period of national concern for more selective admissions criteria and higher academic standards, the continuing decline in the college-age population still makes it difficult for institutions to turn away underprepared students and, at the same time, maintain adequate enrollments. As a result, the need for developmental education programs continues on most college campuses even though few administrators like to admit it. While this need results from many factors, one of the most significant is the demography of the American population.

Given this, it is important for those who plan developmental education and learning assistance programs to understand the circumstances they will face as the American population changes. These changes will put various pressures on colleges and universities and these pressures will have an impact on the future of developmental education. This issue of RESEARCH in DEVELOPMENTAL EDUCATION is, therefore, devoted to a review of research on anticipated changes in the demographics of the American population during the next three decades.

GENERAL TRENDS

Population and Enrollment

While the American population will continue to increase during the next three decades, the portion of the population representing traditional college-age students (18-24) will continue to decline. The American Council on Education projects that there will be 500,000 fewer 18 year olds in the population by 1985 than there were in 1975 (ACE, 1977). This decline in the 18 year old population will not affect

all states equally. Arizona, Colorado, Delaware, Florida, Idaho, and Vermont, for instance, will probably experience an increase in the 18 year old population. The states likely to be hardest hit by decline in the traditional college-age group include Arkansas, Connecticut, Illinois, Minnesota, New Jersey, New York, North Dakota, Ohio, and Pennsylvania (ACE, 1977).

The Carnegie Council on Policy Studies in Higher Education projects that this decline in traditional college-age population, will continue through 1997 with an estimated 23% loss from 1979 levels. This loss will result in two "plateaus" of declining college enrollments. The first will take place between 1983 and 1989 with about 40% of the total anticipated decline occurring during this period. The decline will level off from 1989 to the early 1990's and then continue through 1997. Approximately 60% of the total anticipated decline will take place during this period (Carnegie Council, 1980). Again, however, these declines will vary from state to state. Insofar as actual enrollments are concerned, Arizona, Alaska, Colorado, Georgia, Florida, Idaho, New Hampshire, New Mexico, Nevada, Oregon, Texas, South Carolina, Virginia, and Wyoming will probably experience moderate to substantial growth. Practically all the midwestern states, the northeastern industrial states, and New England (with the exception of Vermont and New Hampshire) are likely to experience moderate to severe declines in enrollment (Carnegie Council, 1980).

Age and Enrollment

While the 18 to 24 year old segment of the American population will decline at least through 1997, the 30 to 50 year old segment of the population will increase. The U.S. Bureau of Census (1978) projects that the number of persons in the U.S. population aged 35 to 54 will increase by 56% from 1978 levels by the year 2000.

This increase will also be reflected in the nature of the college population in the years to come. According to the National Center for Educational Statistics, students age 25 or over accounted for 28% of the college and university population in 1972. By 1982, this percentage had increased to 36% (NCES, 1983).

Dale Parnell, President of the American Association of Community and Junior Colleges, points out that, at present, the average age of community college students is 29 (1984). This represents an increase from years past and a trend that is likely to continue in the future. This trend is also coupled with an expanded rate of postsecondary educational participation among those over age 25 (Parnell, 1984).

Race, Sex and Enrollment

According to the Carnegie Council on Policy Studies in Higher Education, "Enrollment rates for majority males have dropped sharply since about 1969" (1980). This trend is likely to continue. The National Center for Educational Statistics indicates that the percentage of white males completing high school hasdecreased while the percentage of Black and Hispanic males has increased (NCES, 1979). In addition, the percentage of Blacks and Hispanics in the U.S. population is also increasing. The Carnegie Council projects that they will make up at least 30% of the U.S. population by the end of the Century (1980).

As a result of these and other trends, the enrollment rates of white males are likely to stabilize while the enrollment rates of Black and Hispanic males will increase. The U.S. Bureau of the Census projects that the enrollment rate for white males 18 to 21 years old will remain stable at roughly .335% through the year 2000 (1979). The enrollment rate for Black males, on the other hand, will increase from .231% to .335% by the year 2000 (U.S. Bureau of Census, 1979). In other words, the percentage of the white male population that goes to college will be equal to the percentage of the Black male population that goes to college by the year 2000.

The same is true for white and Black females. Presently, about .315% of white women in the 18 to 21 year old bracket go tocollege while only .253% of the Black women in this age bracket do so. By the year 2000, however, about .352% of both groups will attend college (U.S. Bureau of the Census, 1979).

Enrollment rates for Black and white males and females in the 22 to 40 age bracket are projected to remain about the same as at present. The only major change in enrollment rates will be for white

women in the 22 to 24 year old bracket. The percentage of white women attending college in this age group will increase from .078 to .128 by the year 2000 (U.S. Bureau of the Census, 1979).

High School Graduation Rates

The number of high school graduates available at any given time reflect a combination of the percentage of young people in the population and their persistence in school. Based on these factors, the Western Interstate Commission for Higher Education has projected a sharp decline in the number of high school graduates from 1983 to 1986 and another sharp decline from 1989 to 1993. The Commission projects that there will be approximately 500,000 fewer students graduating from high school in 1992 than there were in 1983 (WICHE, 1984).

This decline will not be evenly distributed throughout all 50 states. Some states, such as Alaska, Utah, and Wyoming will experience increases of more than 55% in the number of high school graduates. Others, such as Connecticut, Delaware, Massachusetts, and Rhode Island, will experience declines of 30% or more (WICHE, 1984). In general, the entire eastern half of the U.S. (with the exception of Florida) will face mild to severe decreases in high school graduates while the western half of the U.S. (with the exception of Montana) will experience slight to substantial increases.

In the Western U.S., much of this increase will result from both the growth of the Hispanic population and the increased persistence of Hispanic high school students. This will be particularly true in the states of Arizona, California, Colorado, New Mexico, and Texas. In the Eastern U.S., this will also be true of Florida and New York (Carnegie Council, 1980).

Trends After the Year 2000

By the end of the 20th Century, the grandchildren of the post World War II baby boom period will be reaching adulthood. This will create another surge in the traditional college-age population similar to that experienced in the late 1960's and early 1970's. The Carnegie Council projects that this segment of the population will increase by 13.7% between 1997 and 2010 (1980).

While the numbers of young people in this age bracket will increase for all races, the largest increase will be in the number of young Blacks and Hispanics. In fact, the Hispanic portion of the U.S. population will experience the greatest increases of any racial group (Carnegie Council, 1980).

While these changes are taking place, the size of the 35 to 54 year old segment of the U.S. population will decrease. The segment of the population over age 55 will increase dramatically. In fact, the most significant change in the U.S. population during the next three decades will be the gradual "graying of America." The percentage of Americans over age 55 will increase by almost 52% during this period with more than half of the gain taking place after the year 2000 (U.S. Bureau of the Census, 1978).

SUMMARY

Given these changes in population demographics, a number of trends affecting higher education are apparent. These include the following.

* The pool of 18 to 24 year olds in the American population will decline by an estimated 23% from 1978 levels by the year 1997. In terms of actual numbers, there will be about 700,000 fewer young people in this age bracket by 1997 than there were in 1978.

* During the next 20 years, the average age of Americans will continue to increase. This will be reflected in a similar increase in the average age of college and university students.

* The number of Black and Hispanic young people will continue to increase as a percentage of the American population throughout the next three decades. This will be accompanied by an increase in the participation rate of these groups in postsecondary education and a subsequent increase in their enrollment at colleges and universities.

* The percentage of white males attending colleges and universities will stabilize at present rates. The percen-

tage of non-white males, white and non-white females attending colleges and universities will increase.

* The number of high school graduates in the American population will decrease during the next two decades. Among those who do graduate, a larger percentage will be minorities.

* After the year 1997, the number of young people in the 18 to 21 year old age bracket will begin to increase. This increase will continue throughout the early decades of the 21st Century. By the year 2010, we will have almost as many young people in this age bracket as there were during the peak of the baby boom years.

IMPLICATIONS

These demographic trends have a number of implications for developmental educators in particular and for educational policy makers in general. Perhaps the most significant implication of these trends is that they will make it very difficult for colleges and universities to restrict admissions and still maintain enrollments. This will be particularly true in the midwestern and northern industrial states where rather substantial declines in both the number of 18 to 21 year olds and the number of high school graduates will take place.

This situation is also complicated by the much-publicized decline in the basic academic skill levels of current high school graduates (The President's Commission, 1984). Not only will there be fewer 18 to 21 year olds available; not only will there be fewer high school graduates in this age group; but those who do graduate will continue to suffer from academic skill deficiencies in the foreseeable future.

Educational policy-makers will, therefore, be confronted with some very difficult choices. If they make choices to restrict admissions in order to raise academic standards, the enrollment in colleges and universities will most certainly decline. These enrollment shortfalls may be compensated for in state-supported institutions by having the state accept an increased share of the operating costs of these institutions. They may also be compensated for by dismissing large numbers of tenured faculty, reducing services, delaying equipment acquisition, and other Draconian cost-cutting measures. Some combination of both responses is likely for state-supported institutions. Private institutions will have only the latter measures available to them.

Support for Developmental Programs

Under these circumstances, developmental and learning assistance programs will face two types of presssures. On the one hand, many institutions will attempt to reduce or do away with these programs. The rationale for such moves will be that these programs are too expensive and that the need for them will be reduced by restricting admissions to better-qualified students. Depending upon the specific demographic circumstances in any given state, the ability of admissions officers to recruit large numbers of well-qualified students, and the ability of high schools to produce better-prepared graduates, this response may or may not make sense. In states and institutions where this response is made, support for developmental education and learning assistance programs may be expected to decline. Given continued government emphasis on equal educational opportunity and the expansion in the size of American minority groups, however, such programs are unlikely to disappear entirely. Many of these programs will be retained in some form to provide academic support for minority students who will represent an increased percentage of college and university enrollments.

A second pressure faced by developmental and learning assistance programs will be for accountability in improving retention. The improvement of retention is one of the best and most cost-effective ways to sustain enrollments during periods of decline in admissions. In fact, taking steps to improve retention is a wise move regardless of local demographic and financial circumstances.

In those states and insitutions where retention is emphasized as a response to declining enrollments, developmental and learning assistance programs will continue to receive support for their efforts. This is providing, of course, that these programs can demonstrate that they do, indeed, make a contribution to improved retention.

Populations Served by Developmental Programs

As the nature of the population in American colleges and universities changes, the nature of the clients served by developmental and learning assistance programs will also change. The following changes may be anticipated.

* A larger number of students age 25 and older will be served by developmental and learning assistance programs. This trend will continue through the next three decades.

* Until such time as the quality of high schoolgraduates improves and until the number of 18 to 21 year olds in the population increases, developmental and learning assistance programs will serve larger numbers of students in this age bracket.

* Developmental and learning assistance programs will serve an increasing number of minority students - particularly Hispanic minorities.

* In those settings where developmental and learning assistance programs are retained, regardless of their level of support, the overall size of their client population will increase.

Opportunities for Developmental Educators

As the American population changes, colleges and universities will also change in response. These changes will bring about many new opportunities for developmental educators. Some of the more important opportunities are described below.

Political Involvement - As the debate over academic excellence versus educational opportunity becomes more heated and more political, developmental educators will have many opportunities to become involved in the political process. They may take advantage of these opportunities by providing information to their legislative representatives, by testifying at legislative hearings, and by supporting candidates who understand the benefits of developmental education activities.

Life-Long Learning - As the U. S. population ages, an increasing number of adults will return to college. For the most part, colleges and universities have been slow to capitalize on the opportunities provided by this new clientele. This is particularly true of 4-year institutions. Developmental programs may perform a valuable role by providing services to re-entry, recreational, and other adult learners.

School/College Articulation - Greater articulation between schools and colleges will take place in an effort to improve the quality and the number of high school graduates. As specialists in the area of academic preparation, developmental educators are in an excellent position to participate profitably in this articulation process.

Recruitment - As competition for high school graduates becomes increasingly intense, more college and university faculty will be involved in the recruitment process. Given the strong "student orientation" of most developmental educators, their assistance in recruitment efforts should be most valuable to their institutions.

Preparation for Excellence - Developmental educators are experts in the area of learning improvement. The current and continuing emphasis on academic excellence will provide an opportunity for developmental educators to work with good students in order to help them become excellent students. This will not only bring a new clientele to developmental programs but also a new image.

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Research In Developmental Education

Hunter R. Boylan, Editor

Academic Achievement Trends Among Disadvantaged Youth

By Hunter R. Boylan

A previous issue of RESEARCH in DEVELOPMENTAL EDUCATION (Volume 2, Issue 1, 1984) cited several demographic trends which will influence the characteristics of entering college students in the 1980's and 1990's. One of the major trends cited in this issue was an increase in the number of students from disadvantaged backgrounds enrolling in colleges and universities during the next twenty years. This results from a combination of 1) increased recruitment of nontraditional students, 2) an increase in the number of young people in the American population from nontraditional backgrounds, and 3) an improved college participation rate for young people from nontraditional backgrounds.

As a result of these factors, those who work in developmental education programs on college campuses can expect to serve even greater numbers of disadvantaged students in the years to come. These students will include ethnic minority groups from areas of urban poverty, white students from rural areas, and low-income students from suburban areas. All of these groups will be characterized by a background of poverty and poor schooling (Carnegie Council, 1980). But they may not be the same sort of disadvantaged students currently enrolled in our colleges and universities. In fact, there is a considerable body of evidence to suggest that they will be better prepared in many areas than today's disadvantaged students.

Since we will be serving greater numbers of such students in the very near future, it should be useful to understand how their preparation and level of achievement may differ from those we serve now. This issue of RESEARCH in DEVELOPMENTAL EDUCATION, therefore, is devoted to a summary of the academic achievement trends among those who will be college students from disadvantaged backgrounds during the remainder of the 1980's.

Research Base for the Summary

From 1969 to 1979, the National Institute of Education implemented a series of nation-wide assessments of educational progress for students enrolled in America's public schools. Three such assessments were undertaken during this period. The results of these assessments provided a substantial data base on academic achievement of American school children.

The data from these assessments forms the basis for a number of articles and reports issued between 1979 and 1982. These articles and reports are referenced in the "National Assessment of Educational Progress Retrieval System" (NAPIERS) -- a software package designed by NIE.

Staff members of N.I.E. have been kind enough to share this package, for research purposes, with the Center for

Developmental Education. The package is now part of the Center's resource bank and will be used for a variety of research purposes including this issue of RiDE.

Most of the data reported in this issue of RiDE is from the Third National Assessment, conducted between 1977 and 1979. In reviewing this data, particular emphasis is placed on academic achievement of disadvantaged students who were aged nine to thirteen at the time of the assessment. This group of young people are most likely to be the target of college and university recruitment efforts between now and 1988.

Trends in Reading Achievement

Among nine-year-olds from disadvantaged urban communities, substantial gains were made in several areas of reading between the second and third national assessements. The most significant change came in the area of general reading achievement. Nine-year-olds in the third assessment gained 5.2 percentage points over nine-year-olds in the second assessment, thus closing the gap between their scores and the national average. Similar results were also found for students from extreme rural areas (Education Commission of the States, 1981).

Similar gains were made by thirteen-year-old students from disadvantaged backgrounds. This group gained 5.2 percentage points in the area of literal comprehension between the first and the third natinal assessments. Disadvantaged thirteen-year-olds also gained 4.4 percentage points in the area of inferential comprehension during the three national assessments. It is worth noting, however, that much of this gain was the result of considerably greater achievement among the highest quartile of disadvantaged thirteen-year-olds. Thos in the lowest quartile decreased in reaching achievement from the first to the third national assessment (Education Commission of the States, 1981).

The gains made in reading by nine and thirteen-year-olds were not matched by older students. In fact, disadvantaged rural and urban students in the seventeen-year-old age bracket showed no upward trends in overall performance. Seventeen-year-olds from disadvantaged backgrounds actually fell even further behind the national average in the area of literal comprehension between the first and the third national assessments. This group also demonstrated reference skills considerably below the national average (Education Commission of the States, 1981).

Trends in Writing Achievement

The trends in writing achievement for disadvantaged youngsters are not as positive as they are in reading. Nevertheless, the gap between advantaged and disadvantaged nine and thirteen-year-olds still closed somewhat. This resulted from the fact that, while only minor gains were shown by disadvantaged youth, the major declines were posted by more advantaged young people.

In an evaluation of expressive writing among nine-year-olds, for instance, disadvantaged students remained at about the same level over all three assessments. Advantaged students, on the other hand, declined by 26% in 1970, 21% in 1974, and 15% in 1979 (Education Commission of the States, 1980).

Disadvantaged nine-year-olds also narrowed the performance gap in the area of cohesiveness in writing. The performance of this group remained stable while that of more advantaged students declined from assessment to assessment. The result is that the difference between disadvantaged students and the national average in this area declined from 16 to 7 points between 1970 and 1979 (Education Commission of the States, 1980).

On narrative exercises, disadvantaged students completely eliminated the gap between their performance and that of others. In this area, disadvantaged urban youngsters gained while the advantaged urban group lost. As a result, by 1979, neither group differed significantly from the national average (Education Commission of the States, 1980).

In the area of persuasive writing, the performance of disadvantaged nine-year-olds changed little over the three assessments. This group remained about 9 points below the national average from 1970 to 1979 (Education Commission of the States, 1980).

The only major improvement shown by disadvantaged urban groups was in the seventeen-year-old group. These students improved dramatically in rhetorical skills between 1969 and 1970. Unfortunately, they failed to demonstrate any significant gains in cohesiveness. Since more advantaged seventeen-year-olds tended to gain in both areas over the three assessments, disadvantaged younsters in this age bracket fell even further behind the rest of the nation in overall writing performance (Education Commission of the States, 1980).

Trends in Mathematics Achievement

The major trend in mathematics performance during the three national assessments was that all thirteen-year-old students showed improvement. This was true for the advantaged as well as the disadvantaged and for rural as well as urban youngsters (Education Commission of the States, 1983).

Among disadvantaged thirteen-year-olds from urban areas, the greatest gains were made between 1977 and 1982. During this period their gains on overall mathematics performance were greater than the national average, even though the difference was quite small. The average gain in overall mathematics performance among disadvantaged students was 6 points, while for other groups the gain was only 4 points (Education Commission of the States, 1983).

Disadvantaged urban thirteen-year-olds registered larger than national gains in several areas. The improved areas included: assessing skills, mathematical understanding, and mathematical application. Rural disadvantaged youngsters, however, did not show significant gains (Education Commission of the States, 1983).

Trends in Science Achievement

In the area of science, disadvantaged students consistently scored well below the rest of the nation. At all age levels -- 9, 13, and 17 -- disadvantaged students achieved well below the national average (Crane, 1978).

There were some differences, however, between disadvantaged students from rural areas and those from urban areas. On questions about "science-related things seen, done, or used," the performance of nine-year-olds from rural areas was similar to the national average (Ward, 1979, p. 20). On the other hand, disadvantaged nine-year-olds from urban backgrounds performed below the national average on the same measure (Ward, 1979).

Data from the third national assessment also suggests a general decline in science skills as disadvantaged students grew older. Apparently, the science achievement levels of racial and ethnic minorities as well as other economically disadvantaged youngsters declined from assessment to assessment (Ward, 1979).

Summary of Trends

According to a recent report from the Education Commission of the States, the general trend in recent years has been for disadvantaged students to improve more than advantaged students in reading, writing and mathematics (1983). This trend began in the late 1960's and has continued through the decade of the 1970's. As a result, the gap between the advantaged and the disadvantaged has closed substantially insofar as academic performance in reading, writing, and mathematics is concerned.

The area in which disadvantaged students demonstrated the greatest absolute gain in achievement was mathematics. This was particularly true for those in the thirteen-year-old group.

The area in which disadvantaged students demonstrated the greatest relative gain was general reading achievement. The 5.2 percentage point gain posted by both nine-year-olds and thirteen-year-olds in general reading achievement was the single greatest area of gain for disadvantaged students over the three national assessments.

Gains made by disadvantaged students in writing were small. Nevertheless, a general decline in writing skills on the part of more advantaged students helped to narrow the achievement gap between these two groups.

While rural disadvantaged students made some gains in science achievement,

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Calls for Papers

The American College Personnel Association - Commission XVI

Commission XVI (Learning Centers in Higher Education) of the American College Personnel Association (ACPA) has issued a call for papers to be presented at the 1986 ACPA Convention in New Orleans. The convention will be held from April 8 to April 12, 1986. The theme for the convention is "Generativity: Commitment to the Learning Process." Commission XVI is seeking papers on aspects of learning assistance centers which focus on the learning process. A copy of the call for papers may be obtained by contacting Ms. Jane Levey, Student Learning Center, University of Pittsburgh, Pittsburgh, PA, 15260.

American Educational Reserch Association

The AMERICAN EDUCATIONAL RESEARCH ASSOCIATION is soliciting presentations on research in the area of Developmental and Remedial Education for the 1986 AERA Annual Conference in San Francisco. The conference will be held from March 31 to April 4, 1986. To receive a copy of the call for papers, contact Curtis Miles, Piedmont Technical College, PO Drawer 1467, Greenwood, SC, 29648.

The Franklin Institute Press

The Franklin Institute Press invites papers on thinking and problem solving for publication in their newsletter, TEACHING THINKING AND PROBLEM SOLVING. Two types of articles are requested: (1) Reports on Research and Teaching. These can be informally written but must include substantiating evidence for the points made. Manuscripts should be double-spaced and 8 to 12 manuscript pages long. (2) Opinion Pieces for the Forum Section. These should be provocative, raising controversial issues and presenting new ideas. Though supporting evidence is not necessary (in fact, ideas in the embryonic stage are welcome), the concepts should be sound and productive. Manuscripts should be double-spaced and 4 to 10 manuscript pages long. Inquiries and submissions should be addressed to Julia S. Hough, Director, The Franklin Institute Press, PO Box 2266, Philadelphia, PA 19103.

The National Association for Developmental Education

The National Association for Developmental Education (NADE) has issued a call for papers for it's 1986 conference in Chicago, Illinois. The conference will be held from March 12 to March 15, 1986. Papers on all aspects of remedial, developmental, and learning assistance programs are welcome. To obtain a copy of the call for papers, contact Ms. Carol Bulakowski, Learning Center, College of Lake County, Grayslake, IL, 60030.

urban disadvantaged students did not. In fact, science achievement continues to represent the major area in which disadvantaged students lag behind their more advantaged peers.

Implications of Trends

It is important to note that while disadvantaged youth made a number of absolute and relative gains when measured against the national average, practically all gains were small. Most, in fact, were statistically insignificant.

Although improvement is apparent in the academic achievement of disadvantaged youngsters, they still lag behind the national average. In most cases, their academic achievement also falls behind that of more advantaged youngsters.

It is also worth noting that, in the area where the gap between advantaged and disadvantaged youngsters narrowed the most (writing skills), much of this was due to a decline on the part of the advantaged students. Disadvantaged students have demonstrated very little real improvement in this area.

Perhaps the major implication of these trends in achievement is that no one need expect massive improvements in the academic preparation of disadvantaged college students during the current decade. However, the general upward trend in performance for the disadvantaged is a positive sign. It suggests that many of the reforms undertaken during the 1960's and 1970's designed to improve schooling for minorities and other nontraditional groups have had a positive impact. It also suggests that continued slow but certain improvement in the performance of disadvantaged public school students will, eventually, be noticed in improved skills at the college level.

It is also noteworthy that these improvements in the academic performance of disadvantaged students have taken place well before the current reform movement in public education. It is encouraging, therefore, to recognize that any reforms resulting from the current movement will begin from an already improving performance base.

Finally, it is encouraging to note that, among disadvantaged students, the youngest groups studied tended to demonstrate the greatest gains (i.e., nine-year-olds). In spite of the comparatively small size of these gains, some real improvements in academic ability may result if these trends continue over the next decade. By the early 1990's, the gap between the achievement of disadvantaged students and the national average for achievement may be substantially closed.

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Research In Developmental Education

Hunter R. Boylan, Editor

Performance and Retention of Developmental Students:
A Five-Year Follow-up Study

By Dale Purvis and Pamela C. Watkins

In 1974 the Board of Regents of the University System of Georgia decreed that each institution in the system must offer remediation in reading, English, and mathematics for students unable to satisfy the school's regular entrance requirements. Within the Regent's guidelines, each institution developed its own program of remediation and set its own entrance and exit standards.

At Georgia Southern College, students are placed in developmental studies courses when entrance data—SAT scores, scores on the Georgia Basic Skills Examination (BSE), and predicted freshman average grades (PFAG)—indicate academic deficiencies that could impair students' performance in college-level courses. This study provides follow-up information on one group of students that participated in Georgia Southern's developmental studies program. Data on these students was collected over the five-year period following their admission to GSC in 1979. The purpose of the study is to determine whether the students who took developmental studies courses, receiving academic reinforcement in areas in which they were weak, performed better and stayed in school longer than did other students who did no additional preparatory work.

O'Hear and Pherson (1982) suggest two possibilities for identifying a control group for a comparative analysis of students in a remedial program:

1) the control group can consist of a random sample of the general student population; or

2) if the remedial program is not mandatory, the control group can consist of students with equivalent entrance scores who did not choose to take preparatory courses.

The second design, which provides for a more meaningful comparison of students with equivalent entrance scores, is not usually possible since most remedial programs are mandatory, as is the developmental studies program at GSC. Because of a change in college admission policies, however, it was possible to identify for comparison two groups of students with equivalent entrance characteristics as follows:

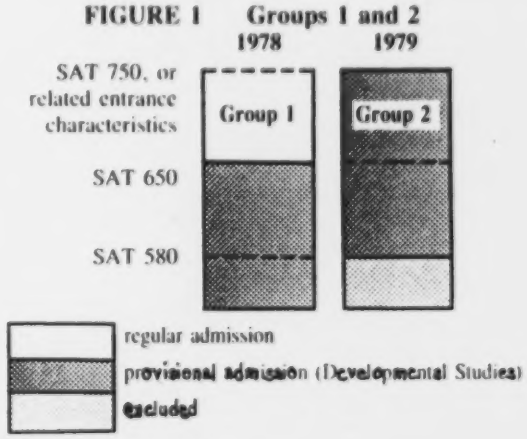
1) SAT scores between 650 and 750, or verbal scores less than 350, or mathematics scores less than 350; or

2) PFAG's of less than 1.6.

In the fall of 1978, students falling into the categories described above were granted regular admission to the college. They were not required to do any remedial work before attempting core-curriculum courses. These students, designated as Group 1, serve as the control group for the study. There are 363 students in Group 1.

In the fall of 1979, because of the changed admission requirements, students in the previously described category were granted provisional admission to GSC. The Basic Skills Examination was administered to these students. Those who performed inadequately on this examination were then placed in one or more developmental studies courses in reading, English, and mathematics. This group, designated Group 2, consists of 239 students (see Figure 1).

FIGURE 1 Groups 1 and 2



In developmental studies courses, students receive instruction in vocabulary and reading comprehension, in grammar and basic writing skills, and in fundamental mathematical and algebraic concepts. When students exit from developmental courses--whether in one, two, or three quarters--they should be prepared to perform satisfactorily in core-curriculum courses in college algebra and English composition and in courses such as history that require good reading skills.

This study compares the performance and retention of the two groups of students. In order to measure performance, two factors are compared:

1) grades in selected core-curriculum courses, and

2) cumulative grade point averages (GPA), which indicated a student's overall performance in college.

Retention is measured by the number of quarters a student remained in school. Two comparisons between Group 1 and Group 2 are made:

1) total number of quarters of enrollment, and

2) number of quarters of enrollment excluding quarters in which students were enrolled primarily or exclusively in developmental studies courses.

All statistics include data through Fall Quarter 1984.

Results

Performance. The data in Tables 1, 2, and 3 indicate that students in Group 2 performed better than did students in Group 1 in their first attempt in core-curriculum courses in English, history, and mathematics. When the grades of the two groups were compared, chi-square tests indicated significant differences at the .05 level. Specifically, the data indicate that students in Group 2 made more A's, B's, and C's and fewer D's and F's, with significant differences occuring in the the C and F categories. In mathematics, Group 2 made more A's, B's, and C's and fewer D's, F's, and W's. However, a significant difference occurred only in the W category.

The lack of significant difference in the other grade categories in mathematics may be the result of the large percentage of students (36.4%) who were excluded from the comparison because, on the basis of their scores on the BSE, they were not required to take developmental studies mathematics. This is a much greater percentage of students than were excluded from the other two comparisons because they were not required to take developmental studies English (9.62%) or reading (5.86%).

When the mean GPA's of the two groups were compared, there was a significant difference in the performance of the two groups at the first two increments of comparison. Group 1 was found to have a significantly higher average GPA through their first thirty hours of college-level work, the equivalent of two quarters of enrollment. Beyond thirty hours, there was no significant difference in the performance of the two groups (see Table 4).

Retention. When the total number of quarters of enrollment of the two groups was compared, a chi-square test

TABLE 1

Performance in English 151

	% Group 1	% Group 2	Z-Value
A	0.32	1.96	1.408
B	5.41	8.50	1.193
C	25.80	41.18	3.284*
D	21.34	21.57	0.057
F	32.17	15.03	-4.382*
W	14.96	11.76	-0.972

* Significant at the .05 level

TABLE 2

Performance in History 152 or 153

	% Group 1	% Group 2	Z-Value
A	2.97	2.78	-0.113
B	16.50	13.89	-0.728
C	27.72	45.14	3.570*
D	22.44	16.67	-1.471
F	17.49	8.33	-2.887*
W	12.88	13.19	0.091

* Significant at the .05 level

TABLE 3

Performance in Math 156 or 160

	% Group 1	% Group 2	Z-Value
A	13.88	19.39	1.226
B	20.64	29.59	1.720
C	17.79	21.43	0.769
D	12.46	10.20	-0.621
F	14.95	10.20	-1.275
W	20.28	9.19	-2.936*

* Significant at the .05 level

TABLE 4

MEAN GPA

	Group 1		Group 2		
Hours	No.	GPA	No.	GPA	T-Stat
15	316	1.72	189	2.04	4.7680*
30	267	1.96	156	2.09	2.2833*
45	222	2.10	136	2.09	-0.1226
60	181	2.18	117	2.15	-0.5193
75	168	2.24	99	2.18	-1.0631
90	149	2.28	90	2.21	-1.1959
105	132	2.31	85	2.21	-1.6241
120	128	2.34	75	2.26	-1.3868
135	121	2.37	72	2.29	-1.3544
150	117	2.37	67	2.32	-0.9171
165	111	2.41	59	2.34	-1.1307
180	99	2.42	46	2.33	-1.3117
195	69	2.38	21	2.32	-0.6320

* Significant at .05 level

indicated a significant difference at the .025 level. On the average, students in Group 2 stayed in school longer than did students in Group 1. The median stay of Group 2 was six quarters, compared to a median stay of four quarters for Group 1. The mean stay of Group 2 was 7.43 quarters, compared to a mean stay of 6.8 quarters for Group 1. A Z-test indicated that significantly fewer students in Group 2 completed only one quarter of enrollment (see Table 6).

Conclusions

Students entering Georgia Southern College are placed in developmental studies courses when entrance profiles indicate weaknesses in basic verbal and mathematical skills that might impair performance in college-level courses in English and mathematics and in courses such as history that require good reading skills. The students in Group 2 who

TABLE 5

Total Quarters of Enrollment

Number of Quarters	% Group 1	% Group 2	Z-Value
1	17.35	10.04	-2.629*
2	10.19	6.69	-1.545
3	15.70	18.41	0.860
4	6.89	4.60	-1.206
5	3.58	7.95	2.182*
6	6.34	7.11	0.367
7	2.48	5.44	1.763
8	1.38	3.35	1.498
9	1.38	3.77	1.737
10	1.93	2.09	0.136
11	1.65	1.26	-0.396
≥ 12	31.13	29.29	-0.482

* Significant at the .05 level

TABLE 6

Quarters of Enrollment, Excluding Developmental Studies Courses

Number of Quarters	% Group 1	% Group 2	Z-Value
1	17.35	9.21	-2.982*
2	10.47	7.53	-1.254
3	15.70	10.88	-1.737
4	6.61	7.53	0.428
5	3.58	5.86	1.263
6	6.34	5.44	-0.462
7	2.48	3.35	0.612
8	1.65	2.93	1.000
9	1.10	2.51	1.226
10	1.93	1.67	-0.237
11	1.65	1.67	0.019
12	31.13	27.62	-0.929

* Significant at the .05 level

participated in the developmental studies program did perform better initially than did the students in Group 1 who did no additional preparatory work, as indicated by Group 2's better grades in their first courses in English, mathematics, and history and by their higher GPA's through the first thirty hours of college-level work. However, as the students in Group 2 advanced beyond those courses for which developmental studies specifically prepared them, the two groups showed virtually no difference in performance.

It was hypothesized that initial success in performance in college would encourage developmental students to remain in school longer. When the total number of quarters of enrollment of the two groups was compared, it was determined that students in Group 2 did remain in school, on the average, two quarters longer than did students in Group 1. However, when the quarters of primary enrollment in developmental studies courses were excluded from comparison, there was no significant difference in the rates of retention of the two groups.

Both groups compared in this study consisted of high-risk students as identified by entrance data. The academic reinforcement through developmental studies that students in Group 2 received did make a difference to these students as they began their college work. Lack of measurable long-range differences between the two groups may indicate the need for continuing support services for high-risk students, such as effective advising, career counseling, and intervention programs for students in academic difficulty.

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